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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,650	02/27/2002	Eric Yijing Zhang	Q66048	9665

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Sughrue Mion Zinn Macpeak & Seas  
2100 Pennsylvania Avenue N W  
Washington, DC 20037-3213

EXAMINER
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HALPERN, MARK

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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11/05/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/914,650	<b>Applicant(s)</b> ZHANG ET AL.	
	<b>Examiner</b> Mark Halpern	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

- 1) Acknowledgement is made of Amendment received 9/14/2007.

Claim 1 is amended.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 2) Claims 1-7, 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 12, the term "or like means" renders the claim indefinite.

Claim 1, lines 14-15, recite the phrase "a drastic high condition from the aspect of temperature". The phrase renders the claim indefinite. The claim is not clear as to what is "a drastic high .... temperature".

Claim 11, lines 1-2, recites the phrase "the temperature of the pulp is very high", and in lines 3-4, recites the phrase "the solid content or concentration is low". The terms "very high" and "low" are relative terms, which render the claim indefinite. The terms "very high" and "low" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the

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temperature and concentration of the pulp suspension at the location of bleach addition and immediately downstream are indeterminate.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3) Claims 1-7, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADMITTED PRIOR ART (Jepson claim 1 of instant application, page 5 of disclosure, Example 1 of disclosure, pages 13 to 15, and Figure 1) in view of MADISON (U.S. 3,186,899), WEST (U.S. 3,467,574), and GRIMSLEY (U.S. 4,863,564).

Claim 1: the ADMITTED PRIOR ART (APA) is an implied admission that the subject matter of the preamble is the prior art work of another, see MPEP 2129 III. The APA discloses a method for manufacturing bleached mechanical and chemithermomechanical pulp wherein a starting material in form of lignocellulose material, preferably wood in chip form, is caused to pass through at least one preheater or through a chemical treatment system, and a steam separator, and then through a single refining stage containing one refiner or two refiners with each refiner in the single refining stage being directly followed by steam separation and with only steam separation existing between refiners, in which the lignocellulose material is converted to a pulp suspension which, subsequent to the most downstream of said steam

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separation, is passed at least to one storage vessel and to a screening department from which the major part of the pulp suspension is taken out as an essentially finished bleached product or is taken out and passed to further treatment stages; and in which reductive bleaching agent as the only bleaching agent is added to the advancing pulp suspension without the use of a bleaching tower or like means (Jepson claim).

The APA does not disclose expressly adding the bleaching agent at a location downstream of the most downstream refiner and upstream of the screening department; and bleaching said pulp under the given drastic condition from the aspect of temperature and the given minimized oxygen access at said location and immediately downstream of said location.

MADISON discloses adding the bleaching agent (col. 2, lines 24-25) at a location downstream of the most downstream refiner (col. 2, lines 25-26) and upstream of the screening department (col. 2, lines 2-5). MADISON does not disclose expressly bleaching said pulp under the given drastic condition from the aspect of temperature and the given minimized oxygen access at said location and immediately downstream of said location.

WEST discloses bleaching pulp under the drastic condition of temperatures ranging from 65 to 100 °C or more (150 to 212 °F; col. 3, lines 6-11 and 17-23). WEST does not disclose expressly minimized oxygen access at said location and immediately downstream of said location.

GRIMSLEY discloses minimized oxygen access at said location and immediately downstream of said location (Abstract, lines 3-6).

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Claim 2: the APA discloses adding complexing agent to the lignocellulose material (page 13, lines 27-29) upstream of said refiner.

Claim 3: the APA discloses passing the pulp suspension to two refiners in series (Fig. 1, items 6 and 10, and pg. 14, lines 1-5).

Claim 5: the APA discloses also passing the pulp suspension to a slusher (latency pulper) located immediately upstream of the storage vessel (the latency chest) (Fig. 1, items 14 and 17, and pg. 14, lines 9-12).

Claim 6: the APA discloses that a pump would be placed immediately downstream of the slusher (pg. 5, lines 6-7). Therefore, the Examiner assumes that the slusher of Example 1 is connected with a pump. Furthermore, APA discloses that it is conventional to deliver the bleaching agent to a pump (pg. 14, lines 28-30, and pg. 15, lines 9-10). Therefore, the Examiner asserts that at the time of the invention, it would have been obvious to a person skilled in the art to add the bleaching agent to the pulp suspension in a pump located in connection with the slusher, said pump being caused to transport the pulp suspension to the storage vessel in a pipe.

Claim 7: the APA discloses causing reject pulp suspension from the screening department (Fig. 1, item 19) to pass through a refiner (Fig. 1, item 28) and thereafter through a slusher (Fig. 1, item 31) whereafter said reject pulp suspension is finally fed into the main pulp suspension flow, in the storage vessel (the latency chest) (Figure 1, item 17) (pg. 14, lines 18-21 and line 32 to pg. 15, line 3).

Claim 12: the APA discloses that the bleaching agent is dithionite (pg. 14, line 29).

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The APA does not disclose expressly adding complexing agent to the pulp suspension immediately upstream of and/or in said second refiner; that the temperature of the pulp suspension is very high from a bleaching aspect at the location at which the bleaching agent is added and immediately downstream of said location or that the solid content or concentration is low at said location; or that the temperature of the pulp suspension is 80 to 90°C at the location at which the bleaching agent is added and immediately downstream of said location, or that the solid content or concentration is 2 to 4% at said location.

With respect to claim 4, WEST discloses adding complexing agent to the pulp suspension (col. 6, lines 25-28) immediately upstream of and/or in said second refiner (col. 4, lines 14-22).

With respect to claim 11, WEST discloses that the temperature of the pulp suspension is very high from a bleaching aspect at the location at which the bleaching agent is added and immediately downstream of said location (col. 3, lines 54-64) and in that the solid content or concentration is low at said location (col. 2, lines 22-23).

With respect to claim 13, WEST discloses that the temperature of the pulp suspension is 65 to over 100°C (col. 3, lines 54-64), which contains the claimed range of 80 to 90°C, at the location at which the bleaching agent is added and immediately downstream of said location, and in that the solid content or concentration is 3 to 5% in conventional hydrosulfite bleaching (col. 2, lines 22-23), which contains one specific point within the claimed range of 2 to 4%, at said location.

The APA, MADISON, WEST, and GRIMSLEY are analogous art because they are from the same field of endeavor, that of bleaching mechanical pulp. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply a bleaching agent at the location described by MADISON (between the last refiner and the screening stage) to the pulp manufacturing method of the APA under drastic temperature conditions, with the addition of a complexing agent, and at a low solid concentration as taught by WEST, and to minimize the access of oxygen as taught by GRIMSLEY, to obtain the invention as specified in claims 1 through 13.

The motivations for doing so would have been that the bleaching reaction is automatically speeded as a result of the pulp having become heated by the work done on it during the second refining stage (MADISON, col. 2, lines 26-29); the temperature of the material is increased so that outgassing of oxygen-containing vapors deleterious to reduction bleaching takes place (WEST, col. 1, lines 15-17); it has been found to be highly desirable to maintain the temperature of the pulp above 150°F during the screening and cleaning operations to prevent any substantial brightness reversion (WEST, col. 5, lines 66-69); the presence or introduction of substantial amounts of oxygen into the pulp would rapidly destroy the effectiveness of the reducing bleaching agent (WEST, col. 3, lines 51-54); bleaching under anaerobic conditions and subsequently handling the bleached pulp under anaerobic conditions thereafter produces a significantly higher paper brightness which is retained after storage of the finished paper (GRIMSLEY, col. 3, lines 1-8); dilution of the pulp has been found to be desirable in order to prevent brightness reversion which has been found to occur to a



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certain extent if the pulp is stored at high consistency (WEST, col. 5, lines 51-54); and chelating agents may be incorporated into the pulp prior to incorporation of the reducing bleaching agent to improve the stability of the hydrosulfite (WEST, col. 6, lines 25-28, and lines 34-35).

***Allowable Subject Matter***

- 4) Claims 8-10 are allowable.

The following is an examiner's statement of reasons for indicating allowable subject matter:

The primary reason for indicating allowable subject matter is that the cited prior art does not disclose a method for making bleached mechanical and chemithermomechanical pulp that includes adding bleaching agent to reject pulp suspension after the refiner and before introducing the reject pulp suspension to the main pulp suspension flow and bleaching said pulp under temperature in range claimed (claim 8).

***Response to Amendment***

- 5) Claim 1 rejection under 35 U.S.C. 112, second paragraph, due to insufficient antecedent basis, is withdrawn in view of amended claim.
- 6) Applicants' arguments filed 9/14/2007, have been fully considered but they are not persuasive.

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Applicants allege that the present claims comply with 35 U.S.C. 112, second paragraph.

Other claims 1, 11 rejections under 35 U.S.C. 112, second paragraph, are not corrected. Examiner maintains that the rejection is proper.

Applicants allege that hindsight reasoning was used in the Office Action rejection.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicants allege that the individual references cited do not disclose the invention.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants allege that there is no motivation to combine the reference, the ADMITTED PRIOR ART with MADISON, WEST and GRIMSLEY.

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In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the combination of ADMITTED PRIOR ART, MADISON, WEST and GRIMSLY obviously discloses the present invention as per item 3, above.

### ***Conclusion***

7) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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8) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Halpern whose telephone no. is (571) 272-1190.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mark Halpern/  
Primary Examiner  
Art Unit 1791